REMARKS

The Examiner is thanked for the Official Action of February 9, 2005. Currently, claims 1-13 are pending and were rejected by the Examiner in the Office Action. This request for reconsideration is intended to be fully responsive thereto.

REFERENCE PRESENTED

The Applicant herewith submits pages 42, 48, 96, 104-106 of *Advanced Technologies for Polymer Battery*, by Noboru Oyama, CMC Company Limited, 1998. This reference is to explain the difference between the electron conduction and ion-conductivity.

REJECTION UNDER 35 U.S.C. 102(b) and 103(a) (Hayashi et al.)

Examiner's Rejection

Claims 1-10 were rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under U.S.C. 103(a) as obvious over Hayashi et al. (JP8-287951). Although the Applicant argued otherwise in the previous response letter, the Examiner maintained that the polyaniline polymer has properties relating to ion-conductivity especially in consideration of applicant's definition of an ion-conducting polymer as one which can dissolve lithium salts, as well as Hayashi et al.'s specific teaching that a lithium salt sulfonic-acid action complex is easily permeated into the polymer active material. The Examiner continued, with respect to ion conductivity, that Hayashi et al. teaches a criticality of the weight percentage of the active material, "[m]ore than 98wt%, there is a problem in respect of binding capacity or ion conductivity. Therefore, the Examiner concludes, ion-conductivity is a property inherently and explicitly disclosed in Hayashi et al.

Applicant's Argument

Applicant respectfully disagrees with the Examiner for the following reasons.

The conductive polymer of Hayashi et al. in Reox (reduction-oxidation) shows an electrical conduction property which causes a transfer/migration of charge due to electron conduction. In the present invention the electrical conduction can also be achieved by ion-conductivity due to ion transport. These 2 types must be distinguished.

A polymer with ion-conductivity has a space in which ion migration is possible and charge transfer is accomplished as the ion migrates and diffuses. Accordingly, the diffusion causes the transfer of the ion in the polymer. If the temperature is lowered then diffusion is restricted. Therefore, the lower the temperature the more the diffusion is restricted, thereby restricting the transfer of the charge and thus reducing ion-conductivity.

On the other hand, a polymer with electron conduction (e.g., polyaniline) generates an electron carrier due to the changes in electron density of π electron conjugate of the molecular structure. Accordingly, the reverse effect takes place when the electron is transferred, i.e., the more the temperature drops the less the resistance becomes.

The Examiner suggested that Hayashi et al. disclosed "ion conductivity." However, in [0004] of Hayashi et al., polyaniline was referred to as an example of one of polymeric materials and Redox activity conductive polymers. Further, as it may be seen in the attached reference, i.e., *Advanced Technologies for Polymer Battery*, Noboru Oyama, CMC Company Limited, 1998, it is common knowledge to anyone in the field of art that polyaniline is an electron conductive material, NOT an ion conductive material. See 1.2.4 ELECTRONIC CONDUCTIVITY OF POLYANILINE. Therefore, as a person in the field of art, the Applicant must assume that the drafter of Hayashi et al. erroneously stated "ion conductivity".

REJECTION UNDER 35 U.S.C. 103(a) (Bai et al. and Hayashi et al.)

Claims 1-5 and 11-13 were rejected under 35 U.S.C. 103(a) as obvious over Bai et al. (US5744258) in view of Hayashi et al. The Examiner stated that as to the resultant electrical conductivity, given that the ion conducting polymer in Hayashi et al. and Bai et al. is identical to that disclosed and claimed by the Applicant given its ionic

conductivity and concentration of lithium salt which encompasses the Applicant's claimed range, it would naturally flow for the polymer to inherently have the same electrical conductivity as claimed, absent of a showing by the Applicant that the claimed invention distinguishes over the reference.

The Applicant respectfully disagrees. Bai et al. just like Hayashi et al., relates to the electron conductivity, NOT ion conductivity (as in lines 25-28, column 2). Therefore, the combination of Hayashi et al. and Bai et al. does not lead to an electrode with an ion-conductive polymer.

REJECTION UNDER 35 U.S.C. 103(a) (Bai et al. and Hayashi et al.)

The Examiner rejected Claims 6-10 under 35 U.S.C. 102(a) as being unpatentable over Bai et al. in view of Hayashi et al. as applied to Claims 1-5 and 11-13 as above, and further in view of Dahn et al. (US4969254).

However, for the same reasons stated above, the combination of Dahn et al. and Bai et al. do not lead a person in the art to the present invention.

CONCLUSION

Accordingly, it is respectfully submitted that claims 1-13 define the invention over the prior arts and notice to this effect is respectfully solicited.

Should Examiner believe further discussion regarding the above claimed language would expedite prosecution he is invited to contact the undersigned at the number listed below.

Respectfully submitted,

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